

We claim:

1. A memory module indicator device having a indicator circuit using an indicator element to indicate situation of access to readable and writable semiconductor memory mounted on a standardized memory module connected to a computer,

wherein the indicator element is provided corresponding to a type of access to the semiconductor memory; and

wherein the indicator circuit uses the indicator element corresponding to the access type to indicate frequency of the type of access to the semiconductor memory.

2. The memory module indicator device according to claim 1,

wherein the indicator circuit uses the indicator element corresponding to the access type to indicate frequency of the type of access to the semiconductor memory and holds an indication corresponding to the maximum frequency of the access.

3. The memory module indicator device according to claim 1,

wherein the computer is mounted with a general-purpose motherboard connector and the memory module is mounted with a memory module connection terminal connectable to the motherboard connector;

wherein the memory module indicator device is provided with a connection terminal having the same shape as

the memory module connection terminal and is provided with a connector having the same shape as the motherboard connector; and

wherein the indicator circuit uses the indicator element corresponding to the access type to indicate frequency of the type of access to the semiconductor memory when the connection terminal is connected to the motherboard connector and the memory module connection terminal is connected to the connector.

4. The memory module indicator device according to claim 1,

wherein the indicator circuit counts the number of accesses to the semiconductor memory for the access type during a specified period and uses the indicator element corresponding to the access type to provide an indication corresponding to the number of counted accesses.

5. The memory module indicator device according to claim 4,

wherein there is provided a plurality of the indicator elements for each of the access types;

wherein the indicator circuit turns on indicator elements corresponding to the access type; and

wherein the number of the indicator elements corresponds to the number of counted accesses.

6. The memory module indicator device according to claim 4,

wherein the indicator circuit comprises a common

counter circuit to count the number of accesses independently of the access types;

wherein the indicator circuit receives a specified clock signal and generates a count signal whose state accordingly varies with the access type for each period corresponding to the specified period; and

wherein, during the specified period, the indicator circuit uses the common counter circuit to count the number of accesses of the type corresponding to a state of the count signal and, after termination of the specified period, uses the indicator element corresponding to the access type to perform indication corresponding to the number of counted accesses.

7. The memory module indicator device according to claim 5,

wherein the access type comprise writing to the semiconductor memory and reading from the semiconductor memory;

wherein the memory module accesses the semiconductor memory in synchronization with a pulse clock signal input from the computer, receives a select signal indicative of a selection state of the semiconductor memory from the computer, and accesses the semiconductor memory correspondingly to the state of a write enable signal which is input from the computer to indicate whether or not to enable writing;

wherein the indicator circuit comprises:

a common counter circuit to count the number of accesses independently of the access types; and

a counting divider circuit to divide the clock signal

and to generate a count division signal which changes alternately between a write count state and a read count state during each period corresponding to the specified period,

wherein, when the count division signal shows a write count state and the write enable signal is set to enable writing during the specified period, the indicator circuit uses the common counter circuit to count the number of times to input the select signal indicative of a selection state from the computer and, after termination of the specified period, activates as many indicator elements for writing as the number of counted accesses; and

wherein, when the count division signal shows a read count state and the write enable signal is set to disable writing during the specified period, the indicator circuit uses the common counter circuit to count the number of times to input the select signal indicative of a selection state from the computer and, after termination of the specified period, activates as many indicator elements for reading as the number of counted accesses.

8. A memory module indicator device having a indicator circuit using an indicator element to indicate situation of access to readable and writable semiconductor memory mounted on a standardized memory module connected to a computer,

wherein the indicator circuit uses the indicator element to indicate a frequency of access to the semiconductor memory and holds an indication corresponding to the maximum

frequency of the access.

9. The memory module indicator device according to claim 8,
wherein the memory module accesses the semiconductor
memory in synchronization with a pulse clock signal input from
the computer, receives a select signal indicative of a selection
state of the semiconductor memory from the computer, and
accesses the semiconductor memory correspondingly to the state
of a write enable signal which is input from the computer to
indicate whether or not to enable writing;

wherein the indicator circuit comprises:

a counter circuit to count the number of accesses;

a counting divider circuit to divide the clock signal
and to generate a count division signal having a cycle
corresponding to a specified period; and

a releasing divider circuit to divide the clock signal
and to generate a signal indicating a release state of a held
indication corresponding to the maximum frequency of the access
at a specified interval longer than the cycle of the count
division signal,

wherein, during the specified period, the indicator
circuit uses the counter circuit to count the number of times
to input the select signal indicative of a selection state from
the computer and, after termination of the specified period,
activates as many indicator elements as the number of counted
accesses; and

wherein, when the signal indicating a release state

is generated, the indicator circuit releases a held indication corresponding to the maximum frequency of the access.

10. A memory module indicator device which uses an indicator element to indicate a situation of access to readable and writable semiconductor memory mounted on a standardized memory module having a memory module connection terminal connectable to a general-purpose motherboard connector provided on a computer, the device comprising:

- a connection terminal having the same shape as the memory module connection terminal;

- a connector having the same shape as the motherboard connector; and

- an indicator circuit which uses the indicator element to perform indication corresponding to the frequency of access to the semiconductor memory when the connection terminal is connected to the motherboard connector and the memory module connection terminal is connected to the connector.

11. The memory module indicator device according to claim 10, further comprising:

- a printed wiring board which has the connection terminal formed and is mounted with the connector;

- a signal cable connected to and extended from the printed wiring board; and

- an indicator unit which is connected to the extended signal cable and is mounted with the indicator element.